

I. Amendments to the Claims

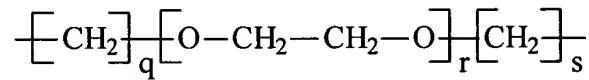
This listing of claims replaces without prejudice all prior versions, and listings, of claims in the present application.

Listing of Claims:

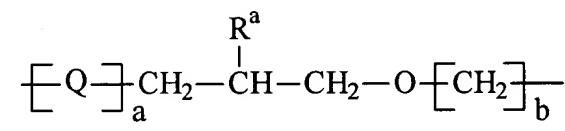
1. (Currently Amended) A reusable linker arm for solid support oligonucleotide synthesis, the linker arm ~~comprising~~ consisting of the following formula:



wherein Z is a linker moiety and T ~~is an organic radical~~ has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200 or T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, -NH₂, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40.

2. (Cancelled).

3. (Cancelled).

4. (Cancelled).

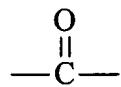
5. (Cancelled).

6. (Cancelled).

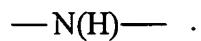
7. (Cancelled).

8. (Cancelled).

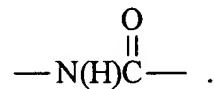
9. (Previously Presented) The reusable linker arm defined in claim 1, wherein the organic moiety comprises at least one moiety having the formula:



10. (Previously Presented) The reusable linker arm defined in claim 1, wherein the organic moiety comprises at least one moiety having the formula:



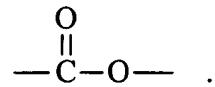
11. (Previously Presented) The reusable linker arm defined in claim 1, wherein the organic moiety comprises at least one moiety having the formula:



12. (Previously Presented) The reusable linker arm defined in claim 1, wherein the organic moiety comprises at least one moiety having the formula:



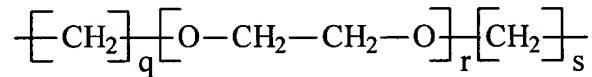
13. (Previously Presented) The reusable linker arm defined in claim 1, wherein the organic moiety comprises at least one moiety having the formula:



14. (Previously Presented) The reusable linker arm defined in claim 1, wherein the organic moiety is unsubstituted.

15. (Currently Amended) The reusable linker arm defined in claim 14, wherein the organic moiety is substituted by at least one moiety selected from the group comprising consisting of a C₁-C₄₀ alkyl group, a C₅-C₄₀ aryl group, a C₁-C₄₀ alkoxy group, a C₁-C₄₀ ester group, a C₁-C₄₀ hydroxy-containing group, a C₂-C₄₀ acrylate-containing group and a C₅-C₄₀ alkylaryl group.

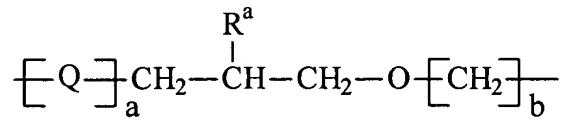
16. (Previously Presented) The reusable linker arm defined in claim 1, wherein T has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200.

17. (Original) The reusable linker arm defined in claim 16, wherein q and s are the same or different and each is an integer having a value of 1-20 and r is an integer having a value of 1-150.

18. (Original) The reusable linker arm defined in claim 1, wherein T has the formula:



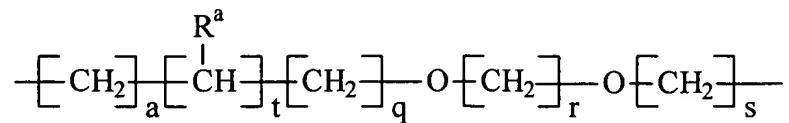
wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, -NH₂, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40.

19. (Currently Amended) The reusable linker arm defined in claim 18, wherein a is 0 and R⁸ R^a is -OH.

20. (Original) The reusable linker arm defined in claim 18, wherein a is 1 and R^a is -NR or -OR.

21. (Currently Amended) The reusable linker arm defined in claim 18, wherein the protecting group is selected from the group comprising consisting of acetyl, chloroacetyl, methoxyacetyl, t-butyl phenoxyacetyl, phenoxyacetyl, trityl, methoxytrityl, dimethoxytrityl (DMT), dialkylphosphite, pivalyl-isobutyloxycarbonyl, t-butyldimethylsilyl, 9-phenylxanthen-9-yl (pixyl), tetrahydropyranyl, methoxytetrahydropyranyl, methoxymethyl, benzyloxymethyl, methoxyethoxymethyl, methylthiomethyl, dialkylphosphate, levulinyl, dimethylphenylsilyl, trimethylsilyl, isopropyl-dimethylsilyl, diisopropylmethylsilyl, diethylisopropylsilyl, triisopropylsilyl, benzoyl, pivaloyl, trifluoroacetyl, allyl, benzyl, o-nitrobenzyl, o-hydroxystyryldimethylsilyl, 2-oxo-1,2-diphenylethyl, allyloxycarbonyl, monomethoxymethyl, nitroveratryloxycarbonyl, dimethoxybenzoin, dimethoxybenzoin carbonate, methylnitropiperonyl carbonate, fluorenyl-methoxycarbonyl, 2-phenylsulfonyl-ethoxycarbonyl, fluorophenyl-methoxypiperidinyl and mixtures thereof.

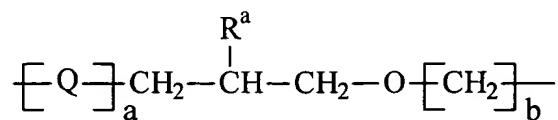
22. (Currently Amended) The reusable linker arm defined in claim 18, wherein Q comprises a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group ~~comprising~~ consisting of hydrogen, hydroxyl, a $\text{C}_1\text{-}\text{C}_{40}$ alkyl group, a $\text{C}_5\text{-}\text{C}_{40}$ aryl group, a $\text{C}_1\text{-}\text{C}_{40}$ alkoxy group, a $\text{C}_1\text{-}\text{C}_{40}$ ester group, a $\text{C}_1\text{-}\text{C}_{40}$ hydroxy-containing group, a $\text{C}_2\text{-}\text{C}_{40}$ acrylate-containing group, a $\text{C}_5\text{-}\text{C}_{40}$ alkylaryl group, $-\text{NH}_2$, $-\text{NHR}$ and $-\text{OR}$, wherein R is a protecting group.

23. (Original) The reusable linker arm defined in claim 22, wherein s is 0, q, r and u are the same or different and each is an integer having a value of 1-10, t is an integer of 1-5 and R^a is hydroxyl.

24. (Original) The reusable linker arm defined in claims 1-15, wherein T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, -NH₂, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40.

25. (Currently Amended) The reusable linker arm defined in claim 24, wherein a is 0 and R⁸ R^a is -OH.

26. (Original) The reusable linker arm defined in claim 24, wherein a is 1 and R^a is -NR or -OR.

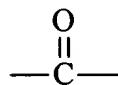
27. (Original) The reusable linker arm defined in claim 18, wherein Q is a C₁-C₁₀₀ organic moiety.

28. (Original) The reusable linker arm defined in claim 18, wherein Q is a saturated organic moiety.

29. (Original) The reusable linker arm defined in claim 18, wherein Q is an unsaturated organic moiety.

30. (Currently Amended) The reusable linker arm defined in claim 18, wherein ~~Q~~ is a C₁-C₁₀₀ organic moiety comprising at least one heteroatom selected from N and O.

31. (Previously Presented) The reusable linker arm defined in claim 27, wherein the organic moiety comprises at least one moiety having the formula:



32. (Previously Presented) The reusable linker arm defined in claim 27, wherein the organic moiety comprises at least one moiety having the formula:



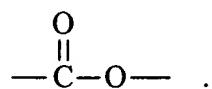
33. (Previously Presented) The reusable linker arm defined in claim 27, wherein the organic moiety comprises at least one moiety having the formula:



34. (Previously Presented) The reusable linker arm defined in claim 27, wherein the organic moiety comprises at least one moiety having the formula:



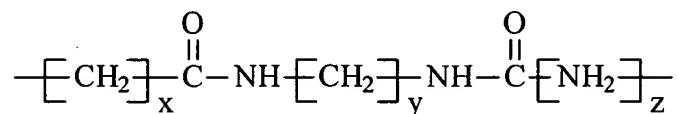
35. (Previously Presented) The reusable linker arm defined in claim 27, wherein organic moiety comprises at least one moiety having the formula:



36. (Previously Presented) The reusable linker arm defined in claim 27, wherein the organic moiety is unsubstituted.

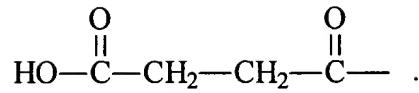
37. (Currently Amended) The reusable linker arm defined in claim 27, wherein the organic moiety is substituted by at least one moiety selected from the group ~~comprising~~ consisting of a C₁-C₄₀ alkyl group, a C₅-C₄₀ aryl group, a C₁-C₄₀ alkoxy group, a C₁-C₄₀ ester group, a C₁-C₄₀ hydroxy-containing group, a C₂-C₄₀ acrylate-containing group and a C₅-C₄₀ alkylaryl group.

38. (Original) The reusable linker arm defined in claim 18, wherein Q has the formula:

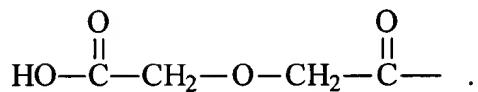


wherein each of x, y and z is an integer having a value of 1-40.

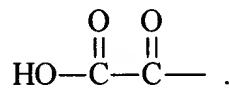
39. (Previously Presented) The reusable linker arm defined in claim 1, wherein Z has the following formula:



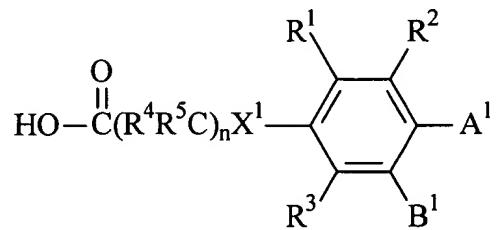
40. (Previously Presented) The reusable linker arm defined in claim 1, wherein Z has the following formula:



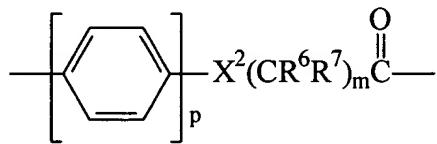
41. (Previously Presented) The reusable linker arm defined in claim 1, wherein Z has the following formula:



42. (Currently Amended) The reusable linker arm defined in claims 1, wherein Z has the following formula:



wherein: R^1 , R^2 and R^3 are the same or different and are selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group; R^4 and R^5 are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group; X^1 is selected from the group consisting of -O-, -S-, -C(O)-, -S(O)₂- and -N(R)-; R is selected from the group ~~comprising~~ consisting of hydrogen, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group; n is 0, 1 or 2; and one of A^1 and B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group, and the other of A^1 and B^1 has the formula:



wherein p is 0 or 1, X^2 is selected from the group consisting of -O-, -S-, -C(O)-, -S(O)₂- and -N(R)-, R is selected from the group ~~comprising~~ consisting of hydrogen, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or

or unsubstituted C_5 - C_{40} alkylaryl group, R^6 and R^7 are the same or different and are selected from the group ~~comprising~~ consisting of hydrogen, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group, and m is 0, 1 or 2.

43. (Original) The reusable linker arm defined in claim 42, wherein p is 0.

44. (Previously Presented) The reusable linker arm defined in claim 42, wherein B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group.

45. (Previously Presented) The reusable linker arm defined in claim 42, wherein each of R^4 , R^5 , R^6 and R^7 is hydrogen.

46. (Previously Presented) The reusable linker arm defined in claim 42, wherein each of m and n are 1.

47. (Previously Presented) The reusable linker arm defined in claim 42, wherein each of R^1 , R^2 and R^3 is hydrogen.

48. (Previously Presented) The reusable linker arm defined in claim 42, wherein X^1 and X^2 are both -O-.

49. (Previously Presented) The reusable linker arm defined in claim 1, wherein SUPPORT is an inorganic substance.

50. (Original) The reusable linker arm defined in claim 49, wherein the inorganic substance is selected from the group consisting of silica, glass beads, porous glass, aluminosilicates, borosilicates, metal oxides, clays and mixtures thereof.

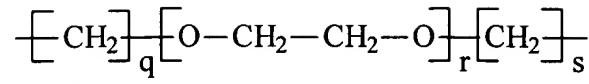
51. (Previously Presented) The reusable linker arm defined in claim 1, wherein SUPPORT is an organic substance.

52. (Original) The reusable linker arm defined in claim 51, wherein the organic substance is a cross-linked polymer.

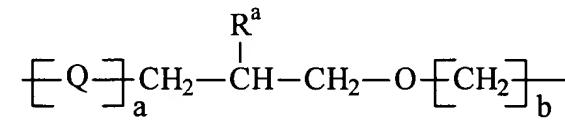
53. (Currently Amended) A reusable linker arm for solid support oligonucleotide synthesis, the linker arm comprising consisting of the following formula:

NUCLEOSIDE—Z—O—T...[SUPPORT]

wherein Z is a linker moiety and T is an organic radical has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200 or T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, -NH₂, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40.

54. (Cancelled).

55. (Cancelled).

56. (Cancelled).

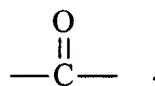
57. (Cancelled).

58. (Cancelled).

59. (Cancelled).

60. (Cancelled).

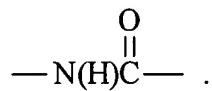
61. (Previously Presented) The reusable linker arm defined in claim 53, wherein the organic moiety comprises at least one moiety having the formula:



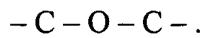
62. (Previously Presented) The reusable linker arm defined in claim 53, wherein the organic moiety comprises at least one moiety having the formula:



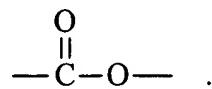
63. (Original) The reusable linker arm defined in claims 53-60, wherein the organic moiety comprises at least one moiety having the formula:



64. (Previously Presented) The reusable linker arm defined in claim 53, wherein the organic moiety comprises at least one moiety having the formula:



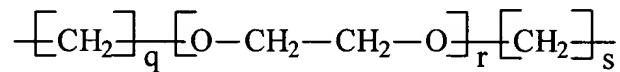
65. (Previously Presented) The reusable linker arm defined in claim 53, wherein organic moiety comprises at least one moiety having the formula:



66. (Previously Presented) The reusable linker arm defined in claim 53, wherein the organic moiety is unsubstituted.

67. (Currently Amended) The reusable linker arm defined in claim 53, wherein the organic moiety is substituted by at least one moiety selected from the group comprising consisting of a $\text{C}_1\text{-C}_{40}$ alkyl group, a $\text{C}_5\text{-C}_{40}$ aryl group, a $\text{C}_1\text{-C}_{40}$ alkoxy group, a $\text{C}_1\text{-C}_{40}$ ester group, a $\text{C}_1\text{-C}_{40}$ hydroxy-containing group, a $\text{C}_2\text{-C}_{40}$ acrylate-containing group and a $\text{C}_5\text{-C}_{40}$ alkylaryl group.

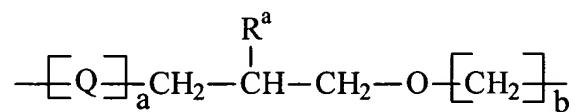
68. (Previously Presented) The reusable linker arm defined in claim 53, wherein T has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200.

69. (Original) The reusable linker arm defined in claim 68, wherein q and s are the same or different and each is an integer having a value of 1-20 and r is an integer having a value of 1-150.

70. (Previously Presented) The reusable linker arm defined in claim 53, wherein T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, -NH₂, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40.

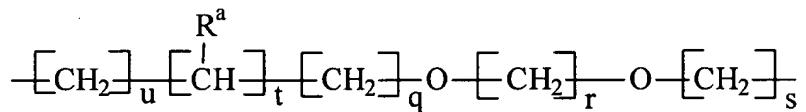
71. (Currently Amended) The reusable linker arm defined in claim 70, wherein a is 0 and R^a is -OH.

72. (Original) The reusable linker arm defined in claim 70, wherein a is 1 and R^a is -NR or -OR.

73. (Currently Amended) The reusable linker arm defined in claim 70, wherein the protecting group is selected from the group comprising consisting of acetyl, chloroacetyl, methoxyacetyl, t-butyl phenoxyacetyl, , trityl, methoxytrityl, dimethoxytrityl (DMT), dialkylphosphite, pivalyl-isobutyloxycarbonyl, t-butyldimethylsilyl, phenoxyacetal, 9-phenylxanthen-9-yl (pixyl),

tetrahydropyranyl, methoxytetrahydropyranyl, methoxymethyl, benzyloxymethyl, methoxyethoxymethyl, methylthiomethyl, dialkylphosphate, levulinyl, dimethylphenylsilyl, trimethylsilyl, isopropyl-dimethylsilyl, diisopropylmethysilyl, diethylisopropylsilyl, triisopropylsilyl, benzoyl, pivaloyl, trifluoroacetyl, allyl, benzyl, o-nitrobenzyl, o-hydroxystyryldimethylsilyl, 2-oxo-1,2-diphenylethyl, allyloxycarbonyl, monomethoxymethyl, nitroveratryloxycarbonyl, dimethoxybenzoin, dimethoxybenzoin carbonate, methylnitropiperonyl carbonate, fluorenyl-methoxycarbonyl, 2-phenylsulfonyl-ethoxycarbonyl, fluorophenyl-methoxypiperidinyl and mixtures thereof.

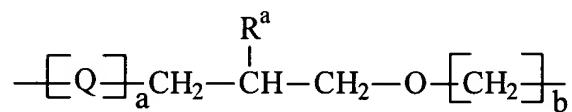
74. (Currently Amended) The reusable linker arm defined in claim 70, wherein Q comprises a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group ~~comprising~~ consisting of hydrogen, hydroxyl, a C_1 - C_{40} alkyl group, a C_5 - C_{40} aryl group, a C_1 - C_{40} alkoxy group, a C_1 - C_{40} ester group, a C_1 - C_{40} hydroxy group, a C_2 - C_{40} acrylate group, a C_5 - C_{40} alkylaryl group, - NH_2 , - NHR and - OR , wherein R is a protecting group.

75. (Original) The reusable linker arm defined in claim 74, wherein s is 0, q, r and u are the same or different and each is an integer having a value of 1-10, t is an integer of 1-5 and R^a is hydroxyl.

76. (Original) The reusable linker arm defined in claim 70, wherein T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, -NH₂, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40.

77. (Currently Amended) The reusable linker arm defined in claim 76, wherein a is 0 and R^a is -OH.

78. (Original) The reusable linker arm defined in claim 76, wherein a is 1 and R^a is -NR or -OR.

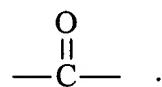
79. (Previously Presented) The reusable linker arm defined in claim 53, wherein Q is a C₁-C₁₀₀ organic moiety.

80. (Previously Presented) The reusable linker arm defined in claim 53, wherein Q is a saturated organic moiety.

81. (Previously Presented) The reusable linker arm defined in claim 53, wherein Q is an unsaturated organic moiety.

82. (Previously Presented) The reusable linker arm defined in claim 53, wherein FQ is a $\text{C}_1\text{-C}_{100}$ organic moiety comprising at least one heteroatom selected from N and O.

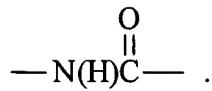
83. (Previously Presented) The reusable linker arm defined in claim 76, wherein the organic moiety comprises at least one moiety having the formula:



84. (Previously Presented) The reusable linker arm defined in claim 76, wherein the organic moiety comprises at least one moiety having the formula:



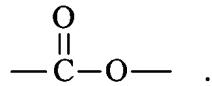
85. (Previously Presented) The reusable linker arm defined in claim 76, wherein the organic moiety comprises at least one moiety having the formula:



86. (Previously Presented) The reusable linker arm defined in claim 76, wherein the organic moiety comprises at least one moiety having the formula:



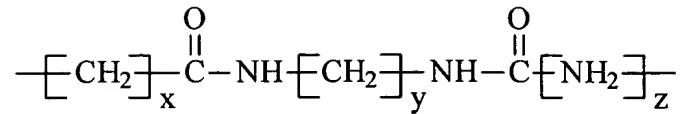
87. (Previously Presented) The reusable linker arm defined in claim 76, wherein organic moiety comprises at least one moiety having the formula:



88. (Previously Presented) The reusable linker arm defined in claim 76, wherein the organic moiety is unsubstituted.

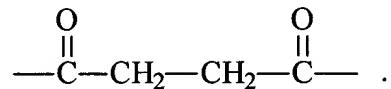
89. (Previously Presented) The reusable linker arm defined in claim 76, wherein the organic moiety is substituted by at least one moiety selected from the group comprising a C₁-C₄₀ alkyl group, a C₅-C₄₀ aryl group, a C₁-C₄₀ alkoxy group, a C₁-C₄₀ ester group, a C₁-C₄₀ hydroxy group, a C₂-C₄₀ acrylate group and a C₅-C₄₀ alkylaryl group.

90. (Original) The reusable linker arm defined in claim 53, wherein Q has the formula:

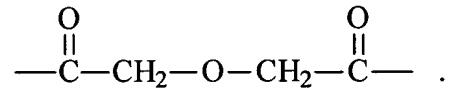


wherein each of x, y and z is an integer having a value of 1-40.

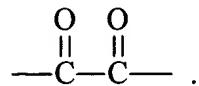
91. (Previously Presented) The reusable linker arm defined in claim 53, wherein Z has the following formula:



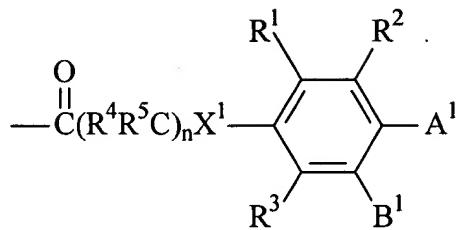
92. (Previously Presented) The reusable linker arm defined in claim 53, wherein Z has the following formula:



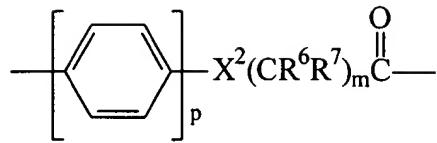
93. (Previously Presented) The reusable linker arm defined in claim 53, wherein Z has the following formula:



94. (Currently Amended) The reusable linker arm defined in claim 53, wherein Z has the following formula:



wherein: R¹, R² and R³ are the same or different and are selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₅-C₃₀ aryl group and a substituted or unsubstituted C₅-C₄₀ alkylaryl group; R⁴ and R⁵ are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₅-C₃₀ aryl group and a substituted or unsubstituted C₅-C₄₀ alkylaryl group; X¹ is selected from the group consisting of -O-, -S-, -C(O)-, -S(O)₂ and -N(R)-; R is selected from the group comprising consisting of hydrogen, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₅-C₃₀ aryl group and a substituted or unsubstituted C₅-C₄₀ alkylaryl group; n is 0, 1 or 2; and one of A¹ and B¹ is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₅-C₃₀ aryl group and a substituted or unsubstituted C₅-C₄₀ alkylaryl group, and the other of A¹ and B¹ has the formula:



wherein p is 0 or 1, X² is selected from the group consisting of -O-, -S-, -C(O)-, -S(O)₂- and -N(R)-, R is selected from the group comprising consisting of hydrogen, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₅-C₃₀ aryl group and a substituted or unsubstituted C₅-C₄₀ alkylaryl group, R⁶ and R⁷ are the same or different and are selected from the group comprising consisting of hydrogen, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₅-C₃₀ aryl group and a substituted or unsubstituted C₅-C₄₀ alkylaryl group, and m is 0, 1 or 2.

95. (Original) The reusable linker arm defined in claim 94, wherein p is 0.

96. (Previously Presented) The reusable linker arm defined in claim 94, wherein B¹ is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₅-C₃₀ aryl group and a substituted or unsubstituted C₅-C₄₀ alkylaryl group.

97. (Previously Presented) The reusable linker arm defined in claim 94, wherein each of R⁴, R⁵, R⁶ and R⁷ is hydrogen.

98. (Previously Presented) The reusable linker arm defined in claim 94, wherein each of m and n are 1.

99. (Previously Presented) The reusable linker arm defined in claim 94, wherein each of R^1 , R^2 and R^3 is hydrogen.

100. (Previously Presented) The reusable linker arm defined in claim 94, wherein X^1 and X^2 are both -O-.

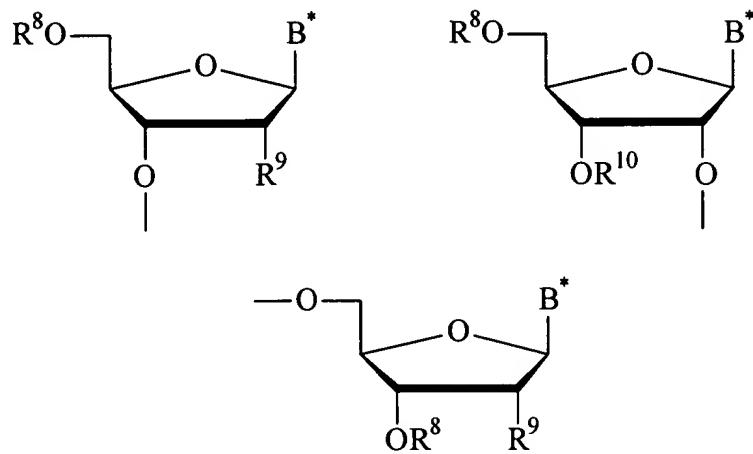
101. (Previously Presented) The reusable linker arm defined in claim 53, wherein SUPPORT is an inorganic substance.

102. (Original) The reusable linker arm defined in claim 101, wherein the inorganic substance is selected from the group consisting of silica, glass beads, porous glass, aluminosilicates, borosilicates, metal oxides, clays and mixtures thereof.

103. (Previously Presented) The reusable linker arm defined in claim 53, wherein SUPPORT is an organic substance.

104. (Original) The reusable linker arm defined in claim 103, wherein the organic substance is a cross-linked polymer.

105. (Previously Presented) The reusable linker arm defined in claim 53, wherein NUCLEOSIDE is a moiety selected from one of the following formulae:

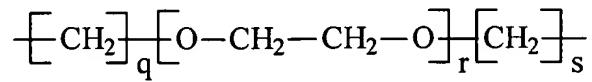


wherein R⁸ and R¹⁰ are the same or different and are hydrogen or a protecting group, R⁹ is hydrogen or -OR¹¹ wherein R¹¹ is hydrogen or a protecting group, and B* is a nucleic acid base.

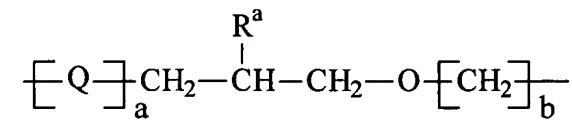
106. (Currently Amended) A process for production of a reusable linker arm for oligonucleotide synthesis having the following formula:



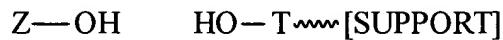
wherein Z is a linker moiety and T is an organic radical has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200 or T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, -NH₂, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40, the process comprising the step of reacting together the compound of Formulae I and II:



(I)

(II)

wherein Z and T are as defined above.

107. (Cancelled).

108. (Cancelled).

109. (Cancelled).

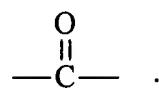
110. (Cancelled).

111. (Cancelled).

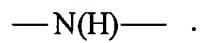
112. (Cancelled).

113. (Cancelled).

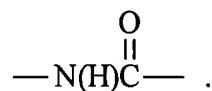
114. (Previously Presented) The process defined in claim 106, wherein the organic moiety comprises at least one moiety having the formula:



115. (Previously Presented) The process defined in claim 106, wherein the organic moiety comprises at least one moiety having the formula:



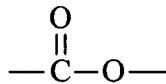
116. (Previously Presented) The process defined in claim 106, wherein the organic moiety comprises at least one moiety having the formula:



117. (Previously Presented) The process defined in claim 106, wherein the organic moiety comprises at least one moiety having the formula:



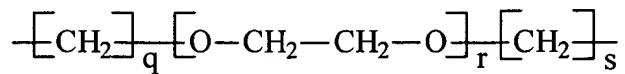
118. (Previously Presented) The process defined in claim 106, wherein organic moiety comprises at least one moiety having the formula:



119. (Previously Presented) The process defined in claim 106, wherein the organic moiety is unsubstituted.

120. (Currently Amended) The process defined in claim 106, wherein the organic moiety is substituted by at least one moiety selected from the group comprising consisting of a C₁-C₄₀ alkyl group, a C₅-C₄₀ aryl group, a C₁-C₄₀ alkoxy group, a C₁-C₄₀ ester group, a C₁-C₄₀ hydroxy-containing group, a C₂-C₄₀ acrylate-containing group and a C₅-C₄₀ alkylaryl group.

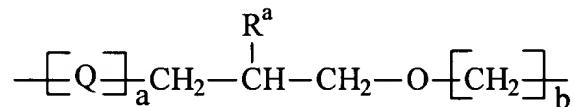
121. (Previously Presented) The process defined in claim 106, wherein T has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200.

122. (Original) The process defined in claim 121, wherein q and s are the same or different and each is an integer having a value of 1-20 and r is an integer having a value of 1-150.

123. (Previously Presented) The process defined in claim 106, wherein T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, -NH₂, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40.

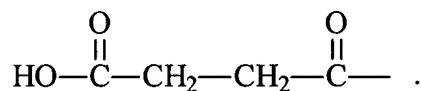
124. (Currently Amended) The reusable linker arm defined in claim 123, wherein a is 0 and R^a is -OH.

125. (Original) The reusable linker arm defined in claim 123, wherein a is 1 and R^a is -NR or -OR.

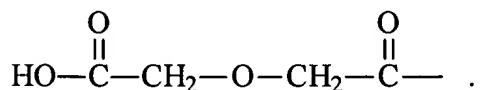
126. (Currently Amended) The process defined in claim 123, wherein the protecting group is selected from the group comprising consisting of acetyl, chloroacetyl, methoxyacetyl, t-butyl

phenoxyacetyl, trityl, methoxytrityl, dimethoxytrityl (DMT), dialkylphosphite, pivalyl-isobutyloxycarbonyl, *t*-butyldimethylsilyl, phenoxyacetal, 9-phenylxanthen-9-yl (pixyl), tetrahydropyranyl, methoxytetrahydropyranyl, methoxymethyl, benzyloxymethyl, methoxyethoxymethyl, methylthiomethyl, dialkylphosphate, levulinyl, dimethylphenylsilyl, trimethylsilyl, isopropyl-dimethylsilyl, diisopropylmethylsilyl, diethylisopropylsilyl, triisopropylsilyl, benzoyl, pivaloyl, trifluoroacetyl, allyl, benzyl, o-nitrobenzyl, o-hydroxystyryldimethylsilyl, 2-oxo-1,2-diphenylethyl, allyloxycarbonyl, monomethoxymethyl, nitroveratryloxycarbonyl, dimethoxybenzoin, dimethoxybenzoin carbonate, methylnitropiperonyl carbonate, fluorenyl-methoxycarbonyl, 2-phenylsulfonyl-ethoxycarbonyl, fluorophenyl-methoxypiperidinyl and mixtures thereof.

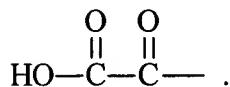
127. (Previously Presented) The process defined in claim 106, wherein Z has the following formula:



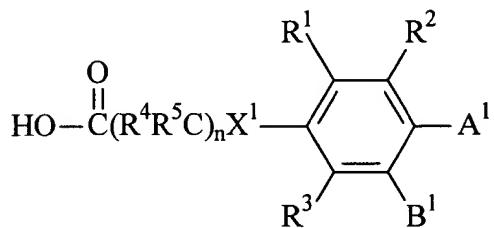
128. (Previously Presented) The process defined in claim 106, wherein Z has the following formula:



129. (Previously Presented) The process defined in claim 106, wherein Z has the following formula:

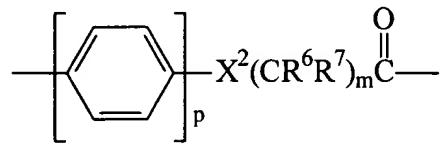


130. (Currently Amended) The process defined in claim 106, wherein Z has the following formula:



wherein: R^1 , R^2 and R^3 are the same or different and are selected from the group consisting of hydrogen, halide, a substituted or unsubstituted $\text{C}_1\text{-}\text{C}_{20}$ alkyl group, a substituted or unsubstituted $\text{C}_5\text{-}\text{C}_{30}$ aryl group and a substituted or unsubstituted $\text{C}_5\text{-}\text{C}_{40}$ alkylaryl group; R^4 and R^5 are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted $\text{C}_1\text{-}\text{C}_{20}$ alkyl group, a substituted or unsubstituted $\text{C}_5\text{-}\text{C}_{30}$ aryl group and a substituted or unsubstituted $\text{C}_5\text{-}\text{C}_{40}$ alkylaryl group; X^1 is selected from the group consisting of $-\text{O}-$, $-\text{S}-$, $-\text{C}(\text{O})-$, $-\text{S}(\text{O})_2-$ and $-\text{N}(\text{R})-$; R is selected from the group comprising consisting of hydrogen, a substituted or unsubstituted $\text{C}_1\text{-}\text{C}_{20}$ alkyl group, a substituted or unsubstituted $\text{C}_5\text{-}\text{C}_{30}$ aryl group and a substituted or unsubstituted $\text{C}_5\text{-}\text{C}_{40}$ alkylaryl group; and n is 0 or 1.

or unsubstituted C_5 - C_{40} alkylaryl group; n is 0, 1 or 2; and one of A^1 and B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group, and the other of A^1 and B^1 has the formula:



wherein p is 0 or 1, X^2 is selected from the group consisting of -O-, -S-, -C(O)-, -S(O)₂- and -N(R)-, R is selected from the group ~~comprising~~ consisting of hydrogen, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group, R^6 and R^7 are the same or different and are selected from the group ~~comprising~~ consisting of hydrogen, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group, and m is 0, 1 or 2.

131. (Original) The process defined in claim 130, wherein p is 0.

132. (Previously Presented) The process defined in claim 130, wherein B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1 - C_{20} alkyl group, a

substituted or unsubstituted C₅-C₃₀ aryl group and a substituted or unsubstituted C₅-C₄₀ alkylaryl group.

133. (Previously Presented) The process defined in claim 130, wherein each of R⁴, R⁵, R⁶ and R⁷ is hydrogen.

134. (Previously Presented) The process defined in claim 130, wherein each of m and n are 1.

135. (Previously Presented) The process defined in claim 130, wherein each of R¹, R² and R³ is hydrogen.

136. (Previously Presented) The process defined in claim 130, wherein X¹ and X² are both -O-.

137. (Previously Presented) The process defined in claim 106, wherein SUPPORT is an inorganic substance.

138. (Original) The process defined in claim 137, wherein the inorganic substance is selected from the group consisting of silica, glass beads, porous glass, aluminosilicates, borosilicates, metal oxides, clays and mixtures thereof.

139. (Previously Presented) The process defined in claim 106, wherein SUPPORT is an organic substance.

140. (Original) The process defined in claim 139, wherein the organic substance is a cross-linked polymer.

141. (Previously Presented) The process defined in claim 106, wherein the process is conducted in the presence of an activating agent.

142. (Currently Amended) The process defined in claim 141, wherein the ~~activating~~ activating agent comprises at least one member selected from the group comprising consisting of an acid chloride; an active ester (e.g., nitrophenyl, nitrophenylthio, trichlorophenyl, trifluorophenyl, pentachlorophenyl, penta-fluorophenyl, or 3-hydroxy-2,3-dihydro-4-oxo-benzotriazine esters); an active hydroxylamine ester (e.g., N-hydroxyphthalimide or N-hydroxysuccinimide); acid anhydride and mixed anhydride.

143. (Currently Amended) The process defined in claim 141, wherein the activating agent ~~comprises at least one member~~ is selected from the group comprising consisting of arylsulfonyl chlorides (e.g., benzenesulfonyl chloride (BS-Cl), mesitylenesulfonyl chloride (MS-Cl), triisopropylsulfonylchloride (TPS-Cl)); active arylsulfonyl esters (e.g., imidazole, triazole, nitrotriazole, or tetrazole esters of BS-Cl, MS-Cl or TPS-Cl); 2-ethoxy-1-(ethoxycarbonyl)-1,2-dihydroquinoline (EEDQ); acyl carbonates;

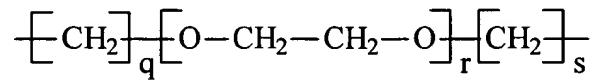
1,1'-(carbonyldioxy)dibenzotriazoles; chlorotri-methyl-silane; carbodiimides (e.g., dicyclohexylcarbodiimide (DCC), 1-(3-dimethylaminopropyl)-ethylcarbodiimide (DEC), diisopropylcarbodiimide (DIC)) either alone or in combination with auxillary nucleophiles (e.g., 1-hydroxybenzotriazole (HO_Bt), 1-hydroxy-7-azabenzotriazole (HOAt), N-hydroxysuccinimide (HOSu), or 3-hydroxy-3,4-dihydro-1,2,3-benzotriazin-4-one (HOO_Bt)) and/or catalysts (e.g., 4-dimethylaminopyridine (DMAP) or N-methylimidazole (NMI)); or uronium salts (e.g., tetramethyluronium chloride (TMU-Cl), 2-(1H-benzotriazol-1-yl)-1,1,3,3-tetramethyluronium hexafluorophosphate (HBTU), 2-(1H-benzotriazol-1-yl)-1,1,3,3-tetramethyluronium tetrafluoroborate (TBTU), 2-succinimido-1,1,3,3-tetramethyluronium tetra-fluoroborate (TSTU), 2-(3,4-dihydro-4-oxo-1,2,3-benzotriazin-3-yl)-1,1,3,3-tetramethyluronium tetrafluoroborate (TDBTU), 2-(2-oxo-1(2H)-pyridyl-1,1,3,3-tetramethyluronium tetrafluoro-borate (TPTU), 2-(5-norbornene-2,3-dicarboximido)-1,1,3,3-tetramethyluronium tetrafluoro-borate (TNTU), O-(7-azabenzotriazol-1-yl)-1,3-dimethyl-1,3-dimethyleneuronium hexa-fluorophosphate (HAMDU), O-(7-azabenzotriazol-1-yl)-1,3-dimethyl-1,3-tri-methyleneuronium hexafluoro-phosphate (HAMTU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-bis(pentamethylene)uronium hexa-fluoro-phosphate (HAPipU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-bis(tetramethylene)uronium hexafluorophosphate (HAPyU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-tetramethyluronium hexafluorophosphate (HATU)) either alone or in combination with auxillary nucleophiles (i.e., 1-hydroxybenzotriazole (HO_Bt), 1-hydroxy-7-azabenzotriazole (HOAt), N-hydroxysuccinimide (HOSu), or 3-hydroxy-3,4-dihydro-1,2,3-benzotriazin-4-one (HOO_Bt)) and/or catalysts (e.g.,

4-dimethylaminopyridine (DMAP) or N-methylimidazole (NMI)) or phosphonium salts (e.g., benzotriazol-1-yl-oxytris(dimethylamino)phosphonium hexafluorophosphate (BOP), benzotriazole-1-yl-oxy-trispyrrolidinophosphonium hexafluorophosphate (PyBOP), 2-(benzotriazol-1-yl)oxy-1,3-dimethylimidazolidinium hexafluorophosphate (BOI), bromo tris(pyrrolidino)phosphonium hexafluorophosphate (PyBroP), 7-azabenzotriazol-1-yloxytris-(dimethylamino)phosphonium hexafluorophosphate (AOP), and 7-azabenzotriazol-1-yloxytris(pyrrolidino)phosphonium hexafluorophosphate (PyAOP)), mixtures thereof either alone or in combination with auxillary nucleophiles and/or and mixtures thereof with catalysts.

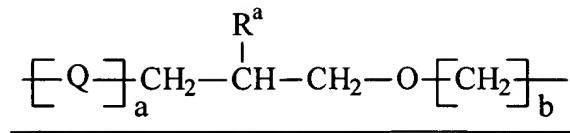
144. (Currently Amended) A process for production of a reusable linker arm for oligonucleotide synthesis having the following formula:

NUCLEOSIDE—Z—O—T_{www}[SUPPORT]

wherein Z is a linker moiety and T ~~is an organic radical~~ has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200 or T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, -NH₂, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40, the process comprising the step of reacting together the compounds of Formulae I, II and III:



(I) (II)



(III)

wherein Z and T are as defined above.

145. (Cancelled).

146. (Cancelled).

147. (Cancelled).

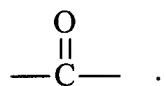
148. (Cancelled).

149. (Cancelled).

150. (Cancelled).

151. (Cancelled).

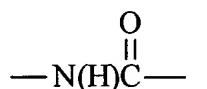
152. (Previously Presented) The process defined in claim 144, wherein the organic moiety comprises at least one moiety having the formula:



153. (Previously Presented) The process defined in claim 144, wherein the organic moiety comprises at least one moiety having the formula:



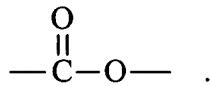
154. (Previously Presented) The process defined in claim 144, wherein the organic moiety comprises at least one moiety having the formula:



155. (Previously Presented) The process defined in claim 144, wherein the organic moiety comprises at least one moiety having the formula:



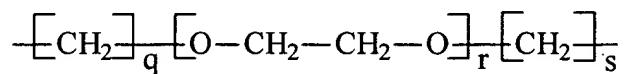
156. (Previously Presented) The process defined in claim 144, wherein organic moiety comprises at least one moiety having the formula:



157. (Previously Presented) The process defined in claim 144, wherein the organic moiety is unsubstituted.

158. (Currently Amended) The process defined in claim 144, wherein the organic moiety is substituted by at least one moiety selected from the group comprising consisting of a C₁-C₄₀ alkyl group, a C₅-C₄₀ aryl group, a C₁-C₄₀ alkoxy group, a C₁-C₄₀ ester group, a C₁-C₄₀ hydroxy group, a C₂-C₄₀ acrylate group and a C₅-C₄₀ alkylaryl group.

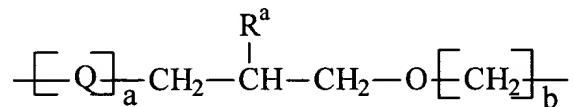
159. (Previously Presented) The process defined in claim 144, wherein T has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200.

160. (Original) The process defined in claim 159, wherein q and s are the same or different and each is an integer having a value of 1-20 and r is an integer having a value of 1-150.

161. (Original) The process defined in claim 144-158, wherein T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, -NH₂, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40.

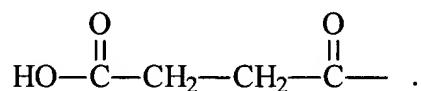
162. (Currently Amended) The reusable linker arm defined in claim 161, wherein a is 0 and R^a is -OH.

163. (Original) The reusable linker arm defined in claim 161, wherein a is 1 and R^a is -NR or -OR.

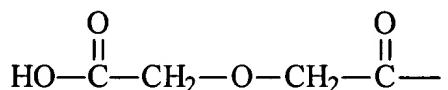
164. (Currently Amended) The process defined in claim 161, wherein the protecting group is selected from the group comprising consisting of acetyl, chloroacetyl, methoxyacetyl, t-butyl

phenoxyacetyl, trityl, methoxytrityl, dimethoxytrityl (DMT), dialkylphosphite, pivalyl-isobutyloxycarbonyl, *t*-butyldimethylsilyl, phenoxyacetal, 9-phenylxanthen-9-yl (pixyl), tetrahydropyranyl, methoxytetrahydropyranyl, methoxymethyl, benzyloxymethyl, methoxyethoxymethyl, methylthiomethyl, dialkylphosphate, levulinyl, dimethylphenylsilyl, trimethylsilyl, isopropyl-dimethylsilyl, diisopropylmethylsilyl, diethylisopropylsilyl, triisopropylsilyl, benzoyl, pivaloyl, trifluoroacetyl, allyl, benzyl, o-nitrobenzyl, o-hydroxystyryldimethylsilyl, 2-oxo-1,2-diphenylethyl, allyloxycarbonyl, monomethoxymethyl, nitroveratryloxycarbonyl, dimethoxybenzoin, dimethoxybenzoin carbonate, methylnitropiperonyl carbonate, fluorenyl-methoxycarbonyl, 2-phenylsulfonyl-ethoxycarbonyl, fluorophenyl-methoxypiperidinyl and mixtures thereof.

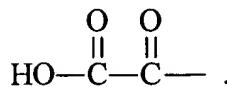
165. (Previously Presented) The process defined in claim 144, wherein Z has the following formula:



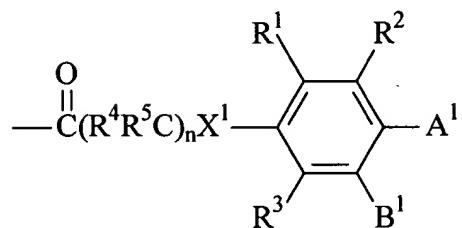
166. (Previously Presented) The process defined in claim 144, wherein Z has the following formula:



167. (Previously Presented) The process defined in claim 144, wherein Z has the following formula:

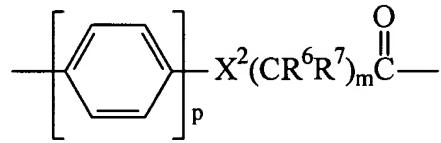


168. (Currently Amended) The process defined in claim 144, wherein Z has the following formula:



wherein: R¹, R² and R³ are the same or different and are selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₅-C₃₀ aryl group and a substituted or unsubstituted C₅-C₄₀ alkylaryl group; R⁴ and R⁵ are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₅-C₃₀ aryl group and a substituted or unsubstituted C₅-C₄₀ alkylaryl group; X¹ is selected from the group consisting of -O-, -S-, -C(O)-, -S(O)₂- and -N(R)-; R is selected from the group comprising consisting of hydrogen, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₅-C₃₀ aryl group and a substituted or

or unsubstituted C_5 - C_{40} alkylaryl group; n is 0, 1 or 2; and one of A^1 and B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group, and the other of A^1 and B^1 has the formula:



wherein p is 0 or 1, X^2 is selected from the group consisting of $-O-$, $-S-$, $-C(O)-$, $-S(O)_2-$ and $-N(R)-$, R is selected from the group ~~comprising~~ consisting of hydrogen, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group, R^6 and R^7 are the same or different and are selected from the group ~~comprising~~ consisting of hydrogen, a substituted or unsubstituted C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group, and m is 0, 1 or 2.

169. (Original) The process defined in claim 168, wherein p is 0.

170. (Previously Presented) The process defined in claim 168, wherein B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1 - C_{20} alkyl group, a

substituted or unsubstituted C_5 - C_{30} aryl group and a substituted or unsubstituted C_5 - C_{40} alkylaryl group.

171. (Previously Presented) The process defined in claim 168, wherein each of R^4 , R^5 , R^6 and R^7 is hydrogen.

172. (Previously Presented) The process defined in claim 168, wherein each of m and n are 1.

173. (Previously Presented) The process defined in claim 168, wherein each of R^1 , R^2 and R^3 is hydrogen.

174. (Previously Presented) The process defined in claim 168, wherein X^1 and X^2 are both -O-.

175. (Previously Presented) The process defined in claim 144, wherein SUPPORT is an inorganic substance.

176. (Original) The process defined in claim 175, wherein the inorganic substance is selected from the group consisting of silica, glass beads, porous glass, aluminosilicates, borosilicates, metal oxides, clays and mixtures thereof.

177. (Previously Presented) The process defined in claim 144, wherein SUPPORT is an organic substance.

178. (Original) The process defined in claim 177, wherein the organic substance is a cross-linked polymer.

179. (Previously Presented) The process defined in claim 144, wherein the process is conducted in the presence of an activating agent.

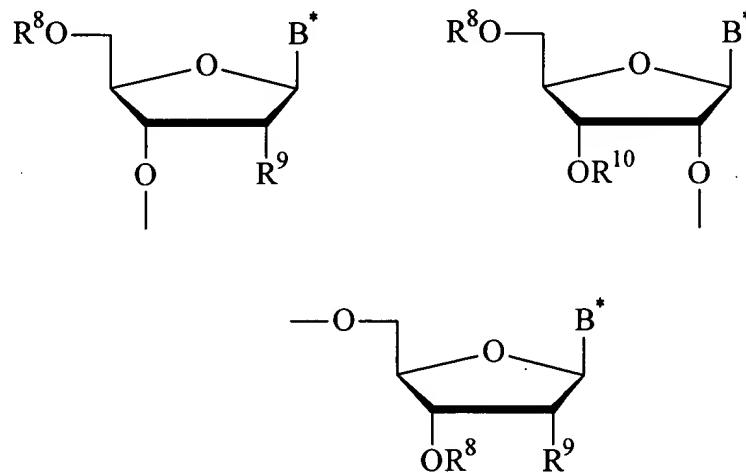
180. (Currently Amended) The process defined in claim 179, wherein the activating agent comprises at least one member selected from the group ~~comprising~~ consisting of an acid chloride; an active ester (e.g., nitrophenyl, nitrophenylthio, trichlorophenyl, trifluorophenyl, pentachlorophenyl, penta-fluorophenyl, or 3-hydroxy-2,3-dihydro-4-oxo-benzotriazine esters); an active hydroxylamine ester (e.g., N-hydroxyphthalimide or N-hydroxysuccinimide); acid anhydride and mixed anhydride.

181. (Currently Amended) The process defined in claim 179, wherein the activating agent ~~comprises at least one member selected from the group comprising~~ is selected from the group consisting of arylsulfonyl chlorides (e.g., benzenesulfonyl chloride (BS-Cl), mesitylenesulfonyl chloride (MS-Cl), triisopropylsulfonylchloride (TPS-Cl)); active arylsulfonyl esters (e.g., imidazole, triazole, nitrotriazole, or tetrazole esters of BS-Cl, MS-Cl or TPS-Cl); 2-ethoxy-1-(ethoxycarbonyl)-1,2-dihydroquinoline (EEDQ); acyl carbonates; 1,1'-(carbonyldioxy)dibenzotriazoles; chlorotri-methyl-silane; carbodiimides (e.g.,

dicyclohexylcarbodiimide (DCC), 1-(3-dimethylaminopropyl)-ethylcarbodiimide (DEC), diisopropylcarbodiimide (DIC)) either alone or in combination with auxillary nucleophiles (e.g., 1-hydroxybenzotriazole (HO_Bt), 1-hydroxy-7-azabenzotriazole (HOAt), N-hydroxysuccinimide (HO_Su), or 3-hydroxy-3,4-dihydro-1,2,3-benzotriazin-4-one (HOObt)) and/or catalysts (e.g., 4-dimethylaminopyridine (DMAP) or N-methylimidazole (NMI)); or uronium salts (e.g., tetramethyluronium chloride (TMU-Cl), 2-(1H-benzotriazol-1-yl)-1,1,3,3-tetramethyluronium hexafluorophosphate (HBTU), 2-(1H-benzotriazol-1-yl)-1,1,3,3-tetramethyluronium tetrafluoroborate (TBTU), 2-succinimido-1,1,3,3-tetramethyluronium tetra-fluoroborate (TSTU), 2-(3,4-dihydro-4-oxo-1,2,3-benzotriazin-3-yl)-1,1,3,3-tetramethyluronium tetrafluoroborate (TDBTU), 2-(2-oxo-1(2H)-pyridyl-1,1,3,3-tetramethyluronium tetrafluoro-borate (TPTU), 2-(5-norbornene-2,3-dicarboximido)-1,1,3,3-tetramethyluronium tetrafluoro-borate (TNTU), O-(7-azabenzotriazol-1-yl)-1,3-dimethyl-1,3-dimethyleneuronium hexa-fluorophosphate (HAMDU), O-(7-azabenzotriazol-1-yl)-1,3-dimethyl-1,3-tri-methyleneuronium hexafluoro-phosphate (HAMTU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-bis(pentamethylene)uronium hexa-fluoro-phosphate (HAPipU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-bis(tetramethylene)uronium hexafluorophosphate (HAPyU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-tetramethyluronium hexafluorophosphate (HATU)) either alone or in combination with auxillary nucleophiles (i.e., 1-hydroxybenzotriazole (HO_Bt), 1-hydroxy-7-azabenzotriazole (HOAt), N-hydroxysuccinimide (HO_Su), or 3-hydroxy-3,4-dihydro-1,2,3-benzotriazin-4-one (HOObt)) and/or catalysts (e.g., 4-dimethylaminopyridine (DMAP) or N-methylimidazole (NMI)) or phosphonium salts (e.g.,

benzotriazol-1-yl-oxytris(dimethylamino)phosphonium hexafluorophosphate (BOP),
 benzotriazole-1-yl-oxy-trispyrrolidinophosphonium hexafluorophosphate (PyBOP),
 2-(benzotriazol-1-yl)oxy-1,3-dimethylimidazolidinium hexafluorophosphate (BOI), bromo
 tris(pyrrolidino)phosphonium hexafluorophosphate (PyBroP),
 7-azabenzotriazol-1-yloxytris-(dimethylamino)phosphonium hexafluorophosphate (AOP), and
 7-azabenzotriazol-1-yloxytris(pyrrolidino)phosphonium hexafluorophosphate (PyAOP), mixtures
thereof with either alone or in combination with auxillary nucleophiles and/or and mixtures thereof
with catalysts.

182. (Previously Presented) The process defined in claim 144, wherein NUCLEOSIDE is a moiety selected from one of the following formulae:



wherein R⁸ and R¹⁰ are the same or different and are hydrogen or a protecting group, R⁹ is hydrogen or -OR¹¹ wherein R¹¹ is hydrogen or a protecting group, and B* is a nucleic acid base.

183. (Previously Presented) The process defined in claim 144, wherein the compounds of Formulae I and II are initially reacted to form a conjugate which is reacted with the compound of Formula III.

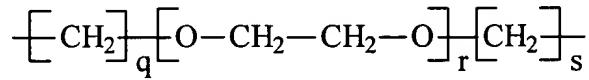
184. (Previously Presented) The process defined in claim 144, wherein compounds of Formulae I and III are initially reacted to form a conjugate which is reacted with the compound of Formula II.

185. (Currently Amended) A process for producing an oligonucleotide having a desired sequence comprising the steps of:

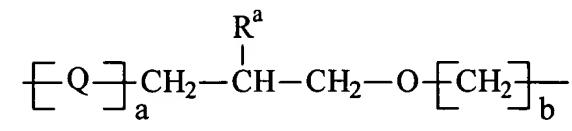
(i) reacting a linker arm having the formula:

NUCLEOSIDE—Z—O—T~~~~[SUPPORT]

wherein Z is a linker moiety and T is an organic radical has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200 or T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, -NH₂, -NR and -OR, wherein R is a protecting group and b is an integer having a value of 0-40, with at least one oligonucleoside base until an oligonucleotide having the desired sequence is produced;

- (ii) cleaving the oligonucleotide having the desired sequence to produce a free oligonucleotide having the desired sequence; and a used linker arm; and
- (iii) recycling the used linker arm to Step (i).

186. (Currently Amended) The process defined in claim 185, wherein the used linker arm produced in Step (ii) has the formula:



wherein Z is a linker moiety and T is an organic radical are as defined in claim 185.

187. (Currently Amended) The process defined in claim 187 185, wherein Step (iii) comprises the step of converting the used linker arm to a linker arm having the formula:

NUCLEOSIDE—Z—O—T~~~~[SUPPORT]

wherein Z is a linker moiety and T is an organic radical are as defined in claim 185.